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Propagation of transverse electromagnetic waves with gravitational perturbations in an isotropic universe

Zakharov A.
Kazan Federal University, 420008, Kremlevskaya 18, Kazan, Russia

Abstract

The combined behavior of gravitational and electromagnetic perturbations in the radiation-dominated plasma of an isotropic universe is considered. It is shown that transverse electromagnetic waves and vector and tensor gravitational perturbations are independent of one another. The propagation of transverse electromagnetic waves during the lepton and radiation-dominated phases is determined. It is shown that the gravitational perturbations help to excite longitudinal electromagnetic fields in the radiation-dominated plasma. © 1986 Plenum Publishing Corporation.

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